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EXAMINER	
SEDIGHIAN, REZA	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,585	OVADIA ET AL.	
	Examiner	Art Unit	
	M. R. Sedighian	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-34 and 36-38* is/are rejected.

7)☒ Claim(s) *14 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/13/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/16/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. This communication is responsive to applicant's 4/16/07 amendments and remarks. The amendments have been entered. Claims 1-38 are now pending.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-13, 15-22, and 24-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Xiong et al. (US Patent No: 6,671,256 B1).

Regarding claims 1 and 24, Xiong teaches a method comprising: dynamically discovering an available lightpath route (col. 2, lines 13-25) comprising a concatenating of a plurality of lightpath segments (light path segments of network 100 and 120 in fig. 2) connected via respective nodes (NET 1, E1, C1, C2, C3, C4, E2, NET 2, fig. 2) along a route spanning from a source edge node (NET 1, fig. 2) to a destination edge node (NET 2, fig. 2) and including at least one switching node (110, fig. 2 and col. 6, lines 25-27) in an optical switched network (100, fig. 2); generating a lightpath reservation message (col. 7, lines 22-35 and 705, fig. 7) containing an explicit route corresponding to the available lightpath route that was discovered (col. 7, lines 8-21) and a scheduled time slot during which network resources are to be reserved (col. 4, lines 66-67, col. 5, lines 1-15, col. 6, lines 25-30 and 330, fig. 3 and 535, fig. 5); and reserving resources (col. 4, lines 65-66, the data channel paths that are in the process of being reserved) along the explicit route to enable transmission of data between the source and destination nodes

along the explicit route during the scheduled time slot (col. 5, lines 1-15, col. 6, lines 25-30), wherein reservation of the resources causes the switching node (110, fig. 1) and the source (NE1, fig. 1) and destination edge nodes (NE2, fig. 1) to be configured so as to form a virtual optical-switched circuit between the source and destination edge nodes during the scheduled time slot (col. 6, lines 13-32, col. 8, lines 43-60), wherein dynamically discovering the available lightpath route includes: maintaining a routing table (305, 335, fig. 3) at the source edge node (E1 105, fig. 2) containing a list of the potential lightpath routes (col. 4, lines 62-66, col. 9, lines 38-41) that may be used to reach the destination edge node (E2 115, fig. 2); maintaining link availability information (310, fig. 3) at the source edge node (E1, 105, fig. 1) corresponding to an availability of link and node resources in the optical switched network (col. 4, lines 24-35); selecting a light path route (305, fig. 3) from the routing table (310, 335, fig. 3) for which a lightpath reservation during a scheduled time slot is to be made (col. 7, lines 15-20); and verifying (315, fig. 3) sufficient resources are available to support the lightpath reservation based on the link availability information (col. 7, lines 15-34). As to claim 24, Xiong further teaches the edge node apparatus (E1, 105, fig. 2 and 300, fig. 3) for use in an optical switched network (col. 3, lines 5-15) comprising of a processor (315, fig. 3), an optical switched network interface (the interface of core router C1 of fig. 2) coupled to the processor and including one optical port (the ports of core router C1), an external network interface (network interface NET 1, fig. 2) coupled to the processor (315, fig. 3) and including at least one external network port (the ports that are connected to the interface of network NET 1), memory (for example, the memory of channel information base CIB 350) coupled to the processor (315, fig. 3) and a storage (for example, the storage of processor 315) coupled to the processor in which instructions are stored, wherein

when executed by the processor perform operations, such as the ones as discussed above in claim 1.

Regarding claim 2, Xiong further teaches the optical switched network comprises a photonic burst switched network (col. 2, lines 26-30, col. 6, lines 25-28).

Regarding claim 3, Xiong further teaches the optical burst switched network comprises a wavelength-division multiplexed network (col. 3, lines 5-20, 37-39 and figs. 1, 2).

Regarding claim 4, Xiong teaches a routing tree table (col. 4, lines 8-10, col. 5, lines 20-22 and 335, 310, fig. 3).

Regarding claims 5 and 25, Xiong further teaches a confirming each node has sufficient resources to support data transmission via the light path route during the scheduled time slot (col. 4, lines 62-66 and 315, 320, fig. 3).

Regarding claim 6, Xiong further teaches sending a reservation error message to the source edge node if it is determined that a node does not have sufficient resources to support data transmission via the lightpath route during the scheduled time slot (col. 8, lines 14-25); and selecting at the source edge node a new lightpath route to reserve resources based on the routing tree table and the resource availability information (col. 7, lines 61-67, col. 8, lines 1-5).

Regarding claims 7 and 27, Xiong further teaches sending (305, 315, fig. 3) link state information indicative of an availability of node and link resources for the optical switched network to the source edge node (col. 4, lines 24-32, 48-50); and updating the link availability information at the source edge node (col. 4, lines 1-13).

Regarding claims 8 and 28, Xiong further teaches the link state information is sent periodically from the switching nodes in the optical switched network (col. 4, lines 5-12).

Regarding claim 9, Xiong further teaches the link state information is sent from a switching node in response to a resource reservation that has been confirmed for the switching node (col. 7, lines 61-67, col. 8, lines 1-8).

Regarding claims 10 and 31, Xiong further teaches prioritizing the potential lightpaths in the list based on at least one transmission-related criteria (col. 4, lines 62-67, col. 5, lines 1-4 and 315, 320, 330, fig. 3).

Regarding claims 11 and 32, Xiong further teaches dynamically reprioritizing the potential lightpaths in the list in response to a detected change in network transmission conditions (col. 4, lines 62-66 and 320, fig. 3).

Regarding claims 12 and 33, Xiong further teaches the potential lightpaths are prioritized based on traffic balancing considerations (col. 8, lines 61-65 and 330, fig. 5 and 535, fig. 5).

Regarding claims 13 and 34, Xiong further teaches dynamically reprioritizing the potential lightpaths in the list in response to a detected change in network topology (col. 4, lines 62-66 and 320, 330, fig. 3).

Regarding claim 15, Xiong further teaches making a soft reservation for a node resource if sufficient resources to support the lightpath reservation are determined to be available for the time slot (col. 2, lines 15-20, col. 4, line 33-35, 38-40)..

Regarding claims 16 and 26, Xiong further teaches passing a resource reservation response message between the nodes in a downstream traversal of the lightpath route (col. 7, lines 22-35 and 700, fig. 7), the resource reservation response message including resource reservation response information (col. 7, lines 32-34); extracting at each node the resource reservation response information from the resource reservation response message (col. 7, lines

32-49, and C1, C2, C3, C4, 705, 710, fig. 7); and changing at each node the soft reservation for the node resource to a hard reservation (col. 4, lines 45-47).

Regarding claims 17, 20, and 30, Xiong further teaches the resource reservation response message comprises a Resv message having a format based on an extension to the RSVP-TE signaling protocol (col. 9, lines 58-65, note that the common signaling protocol for MPLS is RSVP-TE).

Regarding claim 18, Xiong further teaches the lightpath reservation message includes a generalized multi-protocol label-switching (GMPLS) based label defining transmission parameters for a lightpath segment to which the GMPLS-based label corresponds (col. 9, lines 58-65).

Regarding claim 19, Xiong further teaches the GMPLS-based label includes at least one field identifying an input wavelength employed for carrying signals over a lightpath segment identified by the GMPLS-based label (col. 4, lines 18-32).

Regarding claim 21, Xiong further teaches a partial use of a network resource may be reserved (col. 9, lines 60-65).

Regarding claim 22, Xiong further teaches the partial use comprises a bandwidth percentage use of a lightpath segment (col. 9, lines 62-63).

Regarding claim 29, Xiong further teaches the optical switched network comprises a wavelength-division multiplexed PBS network (col. 3, lines 10-17) and the optical switched network interface includes at least one optical port (the optical ports of respective edge routers and core routers) supporting concurrent transmission of respective optical signals comprising different wavelengths (col. 3, lines 37-40 and 205, fig. 2).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al. (US Patent No: 6,671,256 B1) in view of Sahasrabuddhe et al. (US Patent Application Publication No: 2002/0159114 A1).

Regarding claim 23, Xiong differs from the claimed invention in that Xiong does not disclose the lightpath route is dynamically discovered using a modified version of the Open Shortest Path First (OSPF) protocol based on updated link state information. Xiong discloses the reservation method can be combined with a layer 2 protocol like MPLS to establish a label switched path with bandwidth reservation (col. 9, lines 58-60). Sahasrabuddhe discloses a method and apparatus for routing signals through an optical network (page 1, paragraph 0002) by employing a routing protocol, such as the Open Shortest Path First protocol (page 3, paragraph 0051). As it is taught by Sahasrabuddhe, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a routing protocol, such as an Open Shortest Path First protocol, for the routing protocol in the optical transmission network of Xiong to provide an efficient routing method for transferring information between network nodes through the shortest paths.

6. Claim 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al. (US Patent No: 6,671,256 B1) in view of Mishra (US Patent Application Publication No: 2002/0186433 A1).

Regarding claim 36, Xiong discloses a method of dynamically discovering an available lightpath route, generating a lightpath reservation message, and reserving resources along the explicit route to enable transmission of data between the source and destination nodes in an optical switched network, as discussed above in claim 1. However, Xiong differs from the claimed invention in that Xiong does not specifically disclose a machine-readable medium to provide instruction, which when executed by a processor to perform the method of discovering lightpaths routes and generating lightpath reservation message in the optical switched network. Mishra teaches a machine-readable medium (page 5, paragraph 0059) to provide instruction, which when executed by a processor to perform a method of routing and switching in an optical communication network (page 2, paragraph 0021). As it is taught by Mishra, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a machine-readable medium such as the one of Mishra to provide instructions, which when executed by a processor, to perform the method of discovering and reservation of lightpaths in the optical switched network of Xiong to provide an automated lightpath discovery and reservation for the optical switched network.

Regarding claim 37, Xiong teaches receiving link state information indicative of an availability of node and link resources for the optical switched network (col. 4, lines 24-32, 48-50), and updating the link availability information (col. 4, lines 1-13).

Regarding claim 38, Xiong teaches prioritizing the applicable routes in the routing tree table based on a transmission-related criteria (col. 4, lines 62-67, col. 5, lines 1-4 and 315, 320, 330, fig. 3).

7. Claims 14 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER